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Short-Term Fuzzy Forecasting of Brent Oil Prices

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Abstract

© 2015, Asian Social Science. All rights reserved. Oil prices movements is very important macroeconomic factor for decision making. The accuracy of results for different types of oil brands depends on models and algorithms. This paper evaluates the effectiveness of using fuzzy sets to forecast daily Brent oil prices. It also contains possible modifications of the proposed method and in comparison with basic methods. The results suggest that Brent oil prices series have short memory because using information about last 2-days prices shows better forecast accuracy. Forecasting based on fixed universe of discourse shows better efficiency and it also proves that oil prices series has short memory. Adding the probability of switching between linguistic terms in defuzzification function could be used to improve accuracy of predictions. Also the approach can take into consideration expert's opinion about direction of future variation. The effective expert's work can reduce errors of forecast from 1.5% till 0.76%. But this modification can be used if experts correctly guess the direction of the change in trend in eight out of ten cases and more. The reasonable obtained results can be used by analysts dealing with the prediction of oil prices.

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Keywords

Brent, Expert's opinion, Forecast, Fuzzy logic, Fuzzy sets, Petroleum prices, Prediction, Soft computing, Stock market, Time series